ISSN: 2322 - 0902 (P)
ISSN: 2322 - 0910 (O)

International Journal of Ayurveda and Pharma Research

Review Article

ZINGIBER OFFICINALE ROSC. *(SHUNTHI):* A CROSSROAD OF TRADITION AND MODERN PHARMACOLOGY

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Article info

Article History:
Received: 24-05-2025
Accepted: 22-06-2025
Published: 07-07-2025

KEYWORDS:
Zingiber officinale, Classical texts, *Shunthi*, Modern Pharmacology.

ABSTRACT

Objective: This article aims to reveal the ancient classical uses of *Shunthi* for maintaining better health and management of various health illnesses. **Data Source:** The data on *Shunthi* (dried ginger) has been systematically gathered from authoritative Ayurvedic classical texts, including *Samhitas* and *Nighantus*, as well as from reputable scientific sources such as PubMed and Google Scholar. **Review Methods:** This article reveals the ancient resourcefulness behind the therapeutic uses of *Shunthi* from traditional system of medicine to contemporary science. The traditional uses of *Shunthi* confirms the ayurvedic principles described in Ayurvedic classical texts from Vedic era to till. **Conclusion:** In this review work, it was found that *Shunthi* overcomes various diseases related to immune system, digestive system, nervous system and circulatory system. Different herbal, herbomineral and polyherbal formulations of *Shunthi* have used to maintain the health of individual.

INTRODUCTION

Shunthi, scientifically known as *Zingiber officinale* Roscoe.belongs to family Scitaminae. A herbaceous, rhizomatous perennial herb, reaching upto 90cm. in height under cultivation. *Shunthi* effectively balances *Kapha* and *Vata,* demonstrating its ability to absorb *Kapha* and *Ama dosha* in its dried state, which is precisely why it is known as *Shunthi* [1]. It originates from Southeast Asia and is commonly utilized in traditional medicinal practices like Ayurveda, Traditional Chinese Medicine (TCM), and Unani[2]. Its historical applications span from supporting digestion to offering anti-inflammatory benefits, emphasizing its important role in health and wellness. The rhizome of *Shunthi* is rich in bioactive substances like gingerol, shogaol, and zingerone, which contribute to its medicinal properties. Recent scientific investigations have validated its traditional applications, demonstrating that *Shunthi* possesses various therapeutic effects including anti-inflammatory, antioxidant, anti-nausea, and analgesic properties. Given its long-standing historical use and the growing body of scientific evidence, *Shunthi* presents an intriguing topic for additional research. Gaining a better understanding of its phytochemical composition and the mechanisms behind its actions can offer valuable insights into its possible advantages and therapeutic uses. This article seeks to examine the current scientific understanding of *Shunthi*, covering its traditional applications and botanical characteristics, while providing a thorough overview of its therapeutic potential and outlining future research pathways.

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Quick Response Code

https://doi.org/10.47070/ijapr.v13i6.3751

MATERIALS AND METHOD

Table 1: Taxonomical position of *Shunthi* [3]

Taxonomic	Dry ginger plant
Domain	Eukaryota
Kingdom	Plantae
Phylum	Spermatophyta
Subphylum	Angiosperms
Class	Monocotyledon
Order	Zingiberales
Family	Zingiberacea
Genus	Zingiber
Species	Zingiber officinale

Table 2: Synonyms of *Shunthi* in various *Nighantus* [4]

S.No.	Synonyms of *Shunthi*	*Nighantu*	Description
1	*Nagaram*	*Bhavprakash Nighantu*	It is a highly effective medication readily available in stores.
2	*Awakchhatrama*	*Shodhal Nighantu*	The leaves are arranged in a manner that resembles an open umbrella.
3	*Mahichhatrakam*	*Madanadi Nighantu*	The leaves are arranged in a manner that resembles an open umbrella.
4	*Aahichhatrakam*	*Madanadi Nighantu*	The flowers are arranged in radial spikes on long stalks, resembling the hood of a serpent.
5	*Utakatam*	*Nighantu Adarsha*	Rhizome is "*Tikshna*"
6	*Ushanama*	*Bhavprakash Nighantu*	It causes burning sensation.
7	*Katugranthi*	*Raj Nighantu*	Rhizome is a tuberous, consisting of nodes and internodes.
8	*Katubhadram*	*Kaideva Nighantu*	One of the best *Katu Dravya.*
9	*Shosanam*	*Raj Nighantu*	It is a dried product and absorbs water content.
10	*Kaphari*	*Raj Nighantu*	It absorbs *Kapha dosha.*
11	*Maushadham*	*Bhavprakash Nighantu*	It is a very effective drug because of its strong and beneficial effects.
12	*Vishvabheshajam*	*Bhavprakash Nighantu*	The public commonly uses it because of its quality and easy availability.
13	*Vishwa*	*Bhavprakash Nighantu*	Quickly enters circulation because of its vigorous potency.
14	*Shrugveruma*	*Bhavprakash Nighantu*	The rhizome resembles the shape of a horn.
15	*Sauparnama*	*Raj Nighantu*	It is antitoxic drug.

Botanical Description [5]

Habit- An erect flowering perennial herb with an aromatic rhizome.

Stem- Leafy, thick about 60cm long.

Leaves- Leaves are sessile, 20cm long, 1.5-2cm wide, simple, alternate, lanceolate, linear, tapering at both ends, acuminate at apex, distichous, very short petiolate, smooth, bright green and prominent midrib, ligule up to 5mm long.

Inflorescence of ginger: Spike, approx 20cm long, subtending with bracts and bracteoles. Bracts are approximately 2.5cm long, and pale green. calyx is short, three-lobed. The corolla has two green-yellow pointed segments. Each flower has only one short-stalked.

Rhizome- Large, solid, horizontal consists of roundish joints, pale yellow, covered with pale silvery brown skin ringed with leaf scars.

A. *Shunthi* (Wet)

B. *Shunthi* (Dry)

***Shunthi* in *Vedic Grantha* [6]**

Rigveda – *Vishwabheshaji- Jala*

Vishwabhesaja- Vata

A/c to *Sayana-* *Vishwabhesaja- Sarvashya Rogajatashya Shamnima.*

Vishwabhesaja means "healer of all diseases."

***Shunthi* in *Charaka Samhita* (1000B.C- 4th Century. A.D) [7]**

In the *Charaka Samhita, Acharya Charaka* prominently introduced *Shunthi* in *Sutrasthan,* specifically in chapter 4, titled "*Sadvirechanshatashritiya*." Here, he highlighted its properties under the categories of *Deepaniya, Triptighna, Arshoghna, Shitaprashmana*, and *Shoolaprashman Mahakashaya*. Additionally, *Acharya Charaka* provided further insights on *Shunthi* in *Sutrasthan* chapter 27, "*Annapanavidhi*," where it is categorized under "*Aharopayogi Varga*." *Acharya Charak* also mentioned *Shunthi Kalpa* in *Kshata Ksheena Chikitsa*, *Nagaradi Churna* for *Udar-Roga,* and *Pancakoladilepa in Yonivyapad Chikitsa* etc.

Table 3: *Shunthi* in *Charaka Samhita*

S.No.	Preparation/group	Indications/Actions	References
1	*Deepaniya Mahakasaya*	*Deepana, Mandagni*	Su. 4/6
2	*Trptighana Mahakasaya*	*Aruchi*	Su.4/11
3	*Arsoghana Mahakasaya*	*Arsa*	Su 4/12
4	*Sitaprasamana Mahakasaya*	*Jvara*	Su 2/42
5	*Sulaprasamana Mahakasaya*	*Shula*	Su 4/45
6	*Siddha taila*	*Snehana*	Su13/86
7	*Kwatha*	*Krmi apakarsana*	Vi7/17
8	*Yavagu*	*Krmi apakarsana*	Vi7/19
9	*Katuskanda*	*Kaphaja Roga*	Vi8/142
10	*Sirovirecana, Dravya kalpsamgraha*	*Sirovirecana*	Vi8/151
11	*Agurvadya taila*	*Jvara*	Chi3/267
12	*Pippalyadyaghrta*	*Vatikgulma*	Chi5/74
13	*Yavagu*	*Atisara*	Chi.8/125
14	*Pathyadi Churna*	*Yakshma*	Chi8/126
15	*Saindhavadi Churna*	*Kshata Kshina*	Chi11/85
16	*Sadava*	*Yakshma Roga*	Chi11/88
17	*Shunthi Kalpa*	*Kshata Kshina*	Chi11/92
18	*Kwatha*	*Svayathu*	Chi12/24
19	*Kwatha*	*Kaphaja shotha*	Chi12/70
20	*Vidangadi Kshara*	*Udararoga*	Chi13/80
21	*Shunthi Churna*	*Kaphodara*	Chi13/104
22	*Nagaradi Churna*	*Udararoga*	Chi13/115
23	*Shunthi kshira*	*Udararoga*	Chi13/153
24	*Kshara vatika*	*Udararoga*	Chi13/163
25	*Peya*	*Shushkarsa*	Chi14/89
26	*Pippalyadi Ghrita*	*Arsha*	Chi14/104
27	*Pippalimuladi Ghrita*	*Arsha*	Chi14/105
28	*Dadimadi Ghrita*	*Panduroga*	Chi16/44
29	*Duralabhadileha*	*Kasa*	Chi18/50
30	*Saindhavadi Yoga*	*Kasa*	Chi18/63

31	*Kwatha*	*Kasa*	Chi18/112
32	*Pathyadi kalka*	*Kasa*	Chi18/114
33	*Nagaradi Kalka*	*Kasa*	Chi18/115
34	*Pacaka Jala*	*Atisara*	Chi19/22
35	*Dravyadi Ghrita*	*Atisara*	Chi19/80
36	*Drakshadi Sitakasaya*	*Visarpa*	Chi21/58
37	*Churna*	*Brishchika visha*	Chi23/208
38	*Bijapurakadi Madya*	*Madayata*	Chi24/121
39	*Hingwadi Churna*	*Pliha, Udararoga, Ajirna, Visucika*	Chi26/22
40	*Kaserukadi Ghrita*	*Pittaja hrdayaroga*	Chi26/94
41	*Katphaladi Kashaya*	*Kaphaja hrdayaroga*	Chi26/97
42	*Krsnadi Churna*	*Kaphaja hrdayaroga*	Chi26/97
43	*Kshira paka*	*Pittaja pinasa*	Chi26/144
44	*Hingvadi tail*	*Karnashoola*	Chi26/222
45	*Devadarvadi Taila*	*Karnashoola*	Chi26/223
46	*Gandha Taila*	*Karnashoola*	Chi26/224
47	*Kshara Taila*	*Karnashoola, Badhirya, Karnashrava, Karna-nada, Krimikarna, Putikarna*	Chi26/226
48	*Saindhavadi Taila*	*Urustambha*	Chi27/45
49	*Svadanstra Taila*	*Vatavyadhi*	Chi28/147
50	*Mulaka Taila*	*Vatavyadhi*	Chi28/168
51	*Sukumaraka Taila*	*Vatavyadhi*	Chi29/99
52	*Pusyanuga Churna*	*Yonivyapat*	Chi30/92
53	*Pancakoladilepa*	*Yonivyapat*	Chi30/264

***Sunthi* in *Sushruta Samhita* (1000 BC-5th cent. A.D) [8]**

Acharya Sushruta was the first to reference *Shunthi* in *Sutrasthan* chapter 38, titled "*Dravyasangrahaniya*," within the sections on "*Pippalyadi Gana*" and "*Trikatu*." He also referred to *Shunthi* in *Sutrasthan* chapter 46, "*Annapanavidhi*," under the category of "*Shakavarga*." *Acharya Sushruta* identified *Shunthi* as a component in *Saidhavadi taila* and *Ashtakatvara taila* for the treatment of *Urusthambha, kshara taila*, and *Gandha taila* for *Karna Shrava*. He also mentioned *Darvyadi ghrita* for *Tridoshaja Atisara* and *Shunthi Ksheera* for *Hikka Roga*, among other uses.

Table 4: *Sunthi* in *Sushruta Samhita*

S.No.	Preparations/group of drugs	Indications/Actions	References
1	*Pippalayadi Gana*	*Pratisaya, Aruchi*	Su38/22
2	*Trikatu*	*Prameha, Kustha, Tvaka-roga*	Su38/58
3	*Virechana dravya*	*Slesma Vikara*	Su44/20
4	*Churna*	*Virechana*	Su44/65
5	*Besavara*	*Vata Vikara*	Su46/369
6	*Churna*	*Ajirna*	Su.46/519
7	*Siddha Kshira*	*Vata Vyadhi*	Sa.10/18
8	*Siddha Kshira*	*Vata vyadhi*	Sa.10/68
9	*Kwatha*	*Vataja vatarakta*	Chi5/7
10	*Kalka*	*Kaphaja Vatarakta*	Chi5/10
11	*Swarasa*	*Vatavyadhi, karnashula*	Chi5/24

12	*Takra*	*Arsha*	Chi6/13
13	*Siddha Kshira*	*Kaphaja Arsha*	Chi6/16
14	*Dhanavanatra Ghrita*	*Prameha Pidika*	Chi12/5
15	*Churna*	*Virechana*	Chi14/10
16	*Satpala Ghrita*	*Udararoga*	Chi14/14
17	*Churna*	*Mudhagarbha*	Chi15/20
18	*Churna*	*Galagandaroga*	Chi18/51
19	*Churna*	*Vidradhi*	Chi16/33
20	*Kalka*	*Kaphajaslipada*	Chi19/57
21	*Churna*	*Shopha*	Chi23/12
22	*Churna*	*Chhuchhndra visa*	Ka.7/17
23	*Kalka*	*Svedanartha*	Ka.8/45
24	*Anjana*	*Shushkakshipaka*	U.9/20
25	*Lepa*	*Slesmabhisyanda*	U.11/6
26	*Anjana*	*Netrakandu Shopha*	U.11/17
27	*Anjana*	*Netrapaka*	U.12/44
28	*Lepa*	*Netravedna, Lalima*	U.17/90
29	*Swarasa*	*Karnashula*	U.21/18
30	*Swarasa*	*Karnashula*	U.21/25
31	*Churna*	*Atisara*	U.40/36
32	*Churna*	*Amatisara*	U.40/42
33	*Churna*	*Amatisara*	U.40/49
34	*Churna*	*Pittatisara*	U.40/65
35	*Churna*	*Pakvatisara*	U.40/71
36	*Churna*	*Atisara*	U.40/132
37	*Churna*	*Pravahika*	U.40/154
38	*Churna*	*Kaphajasula*	U.42/110
39	*Churna*	*Vataja Hridaroga*	U.43/12
40	*Churna*	*Kamala*	U.44/33
41	*Churna*	*Panajirna*	U47/38
42	*Churna*	*Trisnasamaka*	U.47/80
43	*Kshirapaka*	*Hikkahara*	U50/23

***Shunthi* in *Ashtanga Hridaya* (700 A.D.) [9,10]**

In the *Ashtanga Hridaya, Acharya Vagbhata* first introduced *Shunthi* in *Sutrasthan* chapter 6, "*Annaswaroopa Vigyaniya*," within the section on "*Aushadha Varga*." Additionally, he referred to *Shunthi* in *Sutrasthan* chapter 15, "*Shodhanadiganasangraha*," under the category of "*Vachadi Gana*," while it is also mentioned in *Ashtanga Sangraha* in the "*Pippalyadi Gana*." *Acharya Vagbhata* identifies *Shunthi* as a vital ingredient in *Amritaprash ghrita, Kushmanda Rasayan*, and *Sadava churna* for effectively treating *Kasa-roga*. Additionally, it plays a crucial role in *Kashishadi taila* for managing *Arsha-roga, Shunthi* is an essential component of *Pushyanuga Churna* for *Yonivyapada chikitsa*, and is utilised in *Hingwadi kshara* for *Udara-roga* etc.

Table 5: *Shunthi* in *Ashtanga Hridaya*

S.No.	Preparations/group of drugs	Indications/Actions	References
1	*Swarasa*	*Pratishyaya*	Su.3/23
2	*Katu rasa*	*Vrishya*	Su.10/35
3	*Siddha Jala*	*Pacana, Jvarahara*	Chi.1/15
4	*Peya*	*Hitakara in Jvara*	Chi1/26
5	*Peya*	*Atisara*	Chi 1/27
6	*Sita Kashaya*	*Jvara, Pinasa, Kasa*	Chi.1/45
7	*Kwatha*	*Kapha jvara*	Chi1/54
8	*Kwatha*	*Pitta kapha jvara*	Chi1/61
9	*Kwatha*	*Pitta kapha jvara*	Chi1/62
10	*Mansarasa*	*Jvara*	Chi1/77
11	*Siddha dugdha*	*Trisna, Daha, Jvara*	Chi1/109
12	*Siddha dugdha*	*Jvara, Kasa*	Chi.1/114
13	*Peya*	*Raktapitta*	Chi. 2/16
14	*Siddha Kshira*	*Gudmargagami Raktapitta*	Chi.2/40
15	*Churna*	*Vataj Kasa*	Chi.3/13
16	*Churna*	*Kasa*	Chi.3/15
17	*Leha*	*Kaphaja Kasa*	Chi.3/46
18	*Amritaprasa Ghrita*	*Kasa*	Chi.3/94
19	*Kusmanda rasayana*	*Kasa*	Chi.3/115
20	*Sadava Churna*	*Kasa*	Chi.3/145
21	*Churna*	*Kasa*	Chi3/174
22	*Churna*	*Swasa, Hikka*	Chi4/32
23	*Churna*	*Rajayakshma*	Chi.5/45
24	*Kalka*	*Vataja Chhardi*	Chi.6/9
25	*Kwatha*	*Parsvashula, Hridroga, Swasroga*	Chi.6/28
26	*Dadimadi churna*	*Apatantraka, Hirdoga, Swasaghna*	Chi6/30
27	*Siddha Jala*	*Trinsa*	Chi6/36
28	*Siddha Ghrita*	*Paittika Hridoga*	Chi6/48
29	*Churna*	*Hridroga*	Chi6/52
30	*Kwatha*	*Vataja Madatya*	Chi7/17
31	*Kwatha*	*Madatya*	Chi7/26
32	*Sita kashaya*	*Kaphaja Madatya*	Chi7/33
33	*Mansarasa*	*Kaphaja Madatya*	Ci7/38
34	*Kasisadi Taila*	*Arsha*	Chi8/15
35	*Peya*	*Arsha*	Chi8/86
36	*Kwatha*	*Raktarsa*	Chi8/102
37	*Yavanyadi Churna*	*Raktarsa*	Chi8/115
38	*Kwatha*	*Atisara*	Chi9/6
39	*Siddha Ghrita*	*Pakwatisara*	Chi9/18
40	*Kwatha*	*Pittatisara*	Chi9/58

41	*Pathadi Kwatha/churna*	*Slesmatisara*	Chi9/105
42	*Talisadi Vati*	*Grahani*	Chi10/16
43	*Shunthyadi yoga*	*Gulma*	Chi14/41
44	*Chitrakadi kwatha*	*Shula, Anaha, vibandha*	Chi14/48
45	*Danti –Haritaki Paka*	*Gulma*	Chi14/94
46	*Hingavadi Kashara*	*Udararoga*	Chi15/71
47	*Ksharagutika*	*Ajirna, Shotha, Udarroga*	Chi15/104
48	*Takra*	*Jalodra*	Chi15/128
49	*Drakshadi Awaleha*	*Pandu and kamla*	Chi16/30
50	*Churna*	*Svayathu*	Chi17/2
51	*Lepa*	*Ekanga Shopha*	Chi1729
52	*Churna*	*Vata-Kaphaja Hridaya –Shula*	Chi21/37
53	*Churna*	*Pravahika*	Ka.3/15
54	*Kwatha*	*Kshiralasaka*	U.2/25
55	*Kalka*	*Talukantaka*	U.2/66
56	*Churna*	*Pothaki*	U.9/21
57	*Nasaya*	*Kaphaja Timara*	U.13/68
58	*Ghrita Paka*	*Putaka*	U.20/18
59	*Churna*	*Upkusha*	U.22/31
60	*Siddha kshira*	*Vataja Slipada*	U.30/10
61	*Pusyanuga Churna*	*Yoni roga*	U.30/47
62	*Shuthyadi Rasayana*	*Rasayana*	U.39/104

***Shunthi* in *Bhavaprakasha Samhita* (16th Century) [11]**

In the *Bhavaprakash Samhita*, a key Ayurvedic scripture, *Shunthi* is identified as a powerful herb with many healing properties. *Bhavaprakash* mentions *Shunthi* as a component of *Pachana kashaya* in the treatment of fever *(Jwara Chikitsa),* as well as in *Hingwadi churna* for *Kaphatisara, Chitrakadi vati* for *Grahani roga, Rasna saptaka Kwath*, and *Shunthi ghrita* in the management of *Amavata.*

Table 6: *Shunthi* in *Bhavaprakasha Samhita*

S.No.	Group of drugs/ Preparations	Indications/Action	References
1.	*Pachana Kashaya*	*Jvara*	*Chi.*1/109
2.	*Satyadi Kwatha*	*Jvara*	*Chi.*1/139
3.	*Vridhagangadhara Churna*	*Atisara*	*Chi.*2/32
4.	*Hingvadi Churna*	*Kaphatisara*	*Chi.*2/78
5.	*Chitrakadi Vati*	*Amapachana, Agnidipana, Grahani*	*Chi.*4/52
6.	*Samasarkara Churna*	*Arsha*	*Chi.*5/63
7.	*Pippalyadi Kwatha*	*Kaphaja Kasa*	*Chi.*12/25
8.	*Masa taila*	*Avabahuka*	*Chi.*24/84
9.	*Mahayogaraja Guggulu*	*Amavata*	*Chi.*24/326
10.	*Hingavadya Churna*	*Amavata*	*Chi.*26/31
11.	*Rasnasaptaka Kwatha*	*Amavata*	*Chi.*6/43
12.	*Shunthi Ghrita*	*Amavata*	*Chi.*26/80

In *Bhavprakash Nighantu* [12]

Shunthi alleviates *Kapha* and *Vata dosha*, absorbs *Kapha* and *Ama* and itself used in dried form that's why known as *Shunthi.*

In *Amarkosha* [13]

- *Shunthi* considered in *Stri linga.*
- *Mahaushadha* and *Vishwa* as *Stri* and *Napunshaka* both.
- *Nagara* and *Vishwabhesaja* as *Napunshaka linga.*

Table 7: Nutrient composition (per 100g) [14]

Constituents	*Sunthi*	*Ardraka*
Energy	336kcal	80 kcal
Carbohydrates	71.6g	17.7 g
Sugars	3.39g	1.7g
Dietary Fibre	14.1g	2.0g
Fat	4.24g	0.75g
Protein	8.98g	1.82g

Table 8: Mineral contents (per 100 g) [15]

Minerals	*Shunthi*	*Ardraka*
Calcium	114mg	16mg
Iron	19.8mg	0.6mg
Magnesium	214mg	43mg
Manganese	33.3mg	0.229mg
Phosphorus	168mg	34mg
Potassium	1320mg	415mg
Sodium	27mg	13mg
Zinc	3.64mg	0.34mg

Table 9: Vitamin content (per 100g) [16]

Vitamins	*Shunthi*	*Ardraka*
Thiamine (B1)	0.046mg	0.025mg
Riboflavin (B2)	0.17mg	0.034mg
Niacin (B3)	9.62mg	0.75mg
Pantothenic acid (B5)	0.477mg	0.203mg
Vitamin B6	0.626mg	0.16mg
Folate (B9)	13µg	11µg
Vitamin C	0.7mg	5mg
Vitamin E	0.0	0.26mg

Economic importance of the Zingiberaceae family [17]

Economically, the family is important as a source of some spices, condiments, fragrant oils and ornamentals. Seeds of *Amomum cardamon (Choti Elayachi)* and *Elettaria cardamomum (True Elayachi)*, roots of *Alpinia officinarum* (gangal root) and rhizome of *Alpinia gangala (Siamese ginger)*, *Curcuma longa* and *Zingiber officinale* are used as spices, condiments and flavouring agents. Ginger oil, obtained from the rhizome of *Zingiber officinale*, is used in perfumery and for medicinal purposes. Turmeric is also used for medicinal purposes.

Cultivation of Ginger[18]

- Propogate through rhizome.
- Altitude- up to 1500 m.
- Climate- warm and humid with high rainfall. In India, it is mostly cultivated in Kerala.

- Germinate in 15-20 days.
- Flowering in *Varsha* and *Sharad Ritu*.
- It can be harvested after 6-8 months of cultivation.

Types- A/c to *Desha* [19]

1. Jamaican
2. African
3. Chinese-White and threadless
4. Indian (Khare, 2007)
   - Cochin ginger (light brown or yellowish-grey)
   - Calicut ginger (orange or reddish brown, resembling African ginger)
   - Kolkata ginger (greyish brown to greyish blue)
5. Japanese (*Z. mioga* Rosc.)
6. Martinique (*Z. zerumbet*)

How to make *Shunthi* from *Ardraka* (P.V. Sharma Vol.2nd)- The outer layer of ginger is removed by scraping it with a sharpened bamboo splinter. The ginger is then washed in water, dried in sunlight for 8-12 days, and then moved to the shade for further drying. To make the ginger pieces white and smooth, they are soaked in water for a day and then placed in thick lime water (1kg of lime in 12 litres of water). Afterwards, the ginger is dried in the sun and rubbed with sackcloth. [20]

Table 10: *Rasapanchaka* of *Sunthi* and *Ardraka* [20]

Rasapanchaka	***Shunthi***	***Ardraka***
Rasa	*Katu*	*Katu*
Guna	*Laghu, Snigdha*	*Guru, Ruksha, Tikshna*
Virya	*Ushna*	*Ushna*
Vipaka	*Madhura*	*Katu*

***Dosha karma* of *Shunthi* -** *Kaphavatahara*

- *Vatahara* because of *Ushna Virya* and *Madhur Vipaka*.
- *Kaphahara* because of *Ushna Virya* and *Katu Rasa.*

Sansthanic Karma - *Deepan*, *Pachana, Vrisya, Swarya, Kasahara, Shwashara, Shoolhara, Grahi, Vibandhhara, Amapachana, Ruchya, Sothahara, Sheetprashman*

Chemical Constituents[21]: The rhizome contains essential oils: alpha Zingiberane, beta-bisabolene, 1,8-cineole, camphene, alpha-phellandrene, sesquiphellandrane, alphacurcumene; pungent constituent: 6-,4-,8-,10-,12- gingerols, 6-gingerdion, 6-shagaol, 8shagoal, 6-gingediol3-aceta, 6-gingediol, 5-acetate, 6-gingediol-3-acetate, 6- gingediacetate Oleoresin (5.3-8.6%) Volatile Oil (1-3%).

Useful part - Rhizome

Dose - *Churna* (1-2 gm), *Swarasa* (3-10 ml)

Formulations- *Ardrakakhanda, Panchsamachurna, Samasharkara Churna, Rasnadi Kwatha, Saubhagyashunthi, Shunthi Sura, Shunthi Panaka, Nagaradi Kashaya, Ayush Kwatha*

Contraindication- Fresh ginger should not be used in conditions such as *Kushtha, Pandu, Mutrakrichha, Raktapitta, Vrana, Jwara, Daha*, and during the *Greeshma* and *Sharad Ritu*. *(Raj Nighantu)*[22]

Drug Interaction- *Shunthi* may have interactions with anti-inflammatory drugs such as ibuprofen, aspirin, warfarin, heparin, and various other medications that influence bleeding tendencies.[23]

Pharmacological Activities of *Shunthi* [24]

- **Anti-inflammatory and Analgesic effect:** The analgesic and anti-inflammatory properties of ginger's ethanolic extract may be attributed to the constituent [6]-gingerol. Administering ginger for five days at a dosage of 500mg three times daily diminished both the intensity and duration of pain in students experiencing primary dysmenorrhea, likely due to the inhibition of prostaglandin synthesis.
- **Anti-microbial activity:** Ginger essential oil and oleoresins are rich in various phenolic compounds, including eugenol, shogaols, zingerone, gingerdiols, and gingerols, which contribute to its antimicrobial properties against F. moniliform and Aspergillus species.
- **Cardiotonic activity:** The methanolic extract from ginger rhizome demonstrated a dose-dependent increase in inotropic activity on isolated atria from guinea pigs. The cardiotonic components of ginger that were identified are 6-10 gingerols.
- **Anti-platelet effect:** Ginger notably suppresses platelet aggregation induced by arachidonic acid, along with the production of thromboxanes, prostaglandins, and prostacyclin derived from

cyclooxygenase, while enhancing fibrinolytic activity in both laboratory and animal studies.

- **Glucose, cholesterol and lipid-lowering effects:** The ginger juice reduced blood glucose levels in diabetic rats induced by streptozotocin, likely due to the action of 5-HT receptors, which may include 5-HT receptor antagonists. Additionally, it also lowered serum cholesterol, triglycerides, and blood pressure in these diabetic rats. The ethanolic ginger extract given to cholesterol-fed rabbits over a period of 70 days resulted in significantly less hyperlipidemia and lower levels of atherosclerosis in the aorta compared to the control group that only received the cholesterol diet.
- The aqueous extract of ginger arrested the growth of M. tuberculosis in vivo (Usha & Saroja, 2000-2001).
- Administration of water and alcoholic extracts for 30 days exhibits a significant fall in the level of serum uric acid at all the doses in normal albino rabbits. The alcoholic extract was found to be more effective (Maheshwari et al., 1995).
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DISCUSSION

Acharya Charak mentioned *Shunthi* in the *Aaharopayogi Varga* and *Ardraka* in the *Haritakyadi Varga*. As we noted in earlier slides, *Shunthi* has 71.6g of carbohydrates, 3.39g of sugar, 4.24g of fat, 8.98g of protein, and 14.1g of fibre, which are considerably higher than those found in *Ardraka*. Both *Shunthi* and *Ardraka* share similar taste *(Katu rasa)* and potency *(Ushna virya),* yet they differ in their properties and post-digestive effects. *Shunthi* is characterized as *Laghu* and *Snigdha*, while *Ardraka* is identified as *Guru, Ruksha,* and *Tikshna*. According to *Bhavprakash Nighantu, Shunthi* is recommended for treating *Pandu* due to its iron content of 19.8g, whereas *Ardraka* is discouraged according to *Raj Nighantu*. *Shunthi* appears in many formulations prescribed for *Amavata*. When used in powdered form without an *Anupana, Shunthi* is regarded as *Vibandhahara*, and it is also recommended for *Atisara* when combined with *Takra.* The *Katu rasa* of *Shunthi* arises from its oleoresin gingerine component. *Shunthi* exhibits anti-inflammatory, antimicrobial, and antioxidant properties, making it beneficial for conditions such as *Amavata*, coughs, colds, gastrointestinal issues, and cardiovascular diseases. Additionally, *Shunthi* has a *Kaphavata Shamaka* nature. A comparison of nutritional composition, mineral, and vitamin content reveals that *Sunthi* is more advantageous than *Ardraka*.

CONCLUSION

The examination of both contemporary and ancient texts indicates that *Shunthi (Zingiber officinale)* plays a significant role in Ayurvedic medicine. The fresh rhizome is referred to as *Ardraka* due to its moist nature, while the dried form is called S*hunthi*. Although *Ardraka* and *Shunthi* share the same *Virya* and *Rasa*, they possess distinct *Guna* and *Vipak*. It is readily accessible and cost effective compared to other medications. *Shunthi* holds substantial economic and commercial significance.

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Cite this article as:
Goldi Singh, Premlata, Pooja Chaurasiya, Anil Kumar Singh, Poonam Sharma. Zingiber Officinale Rosc. (Shunthi): A Crossroad of Tradition and Modern Pharmacology. International Journal of Ayurveda and Pharma Research. 2025;13(6):27-37.
https://doi.org/10.47070/ijapr.v13i6.3751
Source of support: Nil, Conflict of interest: None Declared

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